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CISCO SYSTEMS

Product Bulletin, No. 1755

Ordering Information for Cisco CSS 11500 Series Content Services Switch

Introduction

The Cisco CSS 11500 Series Content Services Switch is a compact modular platform that delivers the richest Layer 4–7 traffic-management services for e-business applications.

The Cisco CSS 11500 Series, with the award-winning Cisco Web Network Services (WebNS) software, is specifically designed to provide robust transport and application (Layer 4–7) services for Internet and intranet data centers. The Cisco CSS 11500 Series builds on the success of the Cisco CSS 11000 Series in five key areas:

- Introduces an intelligent, distributed architecture to meet the real-world scaling requirements of today's e-business infrastructure
- Improves site availability and transaction integrity by introducing Adaptive Session Redundancy—a new industry standard in stateful failover
- Delivers the greatest flexibility of any content switch in its class for customizing combinations of ports, performance, and services
- Scales secured transaction performance through support of an integrated, high-capacity Secure Sockets Layer (SSL) module (Cisco WebNS 5.20)
- Protects investments by enabling upgrades of performance, ports, and services through modularity

The Cisco CSS 11500 Series Content Services Switch enables businesses to simultaneously reduce costs and boost productivity by optimizing data center resources and offering a superior online experience for customers, business partners, and employees. Through fast switching and content forwarding, Cisco CSS 11500 Series switches improve the use, responsiveness, availability, scalability, and security of Web sites, server farms, cache clusters, and firewall systems.

Available Models

Which Cisco CSS 11500 model you select depends on three factors: how many slots you need, whether you require hardware redundancy, and whether you need AC or DC power.

The Cisco CSS 11500 Series includes two models: the two-rack-unit (2RU), three-slot CSS 11503 with 20 Gbps of aggregate throughput and the 5RU, six-slot CSS 11506 with 40 Gbps of aggregate throughput.

The CSS 11506 not only supports redundancy in switch control modules, but also supports redundant power supplies and redundant switch modules of 20 Gbps. The CSS 11503 supports just one switch control module and one integrated switch module. All switch control modules support redundant disk drives.

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	CSS 11503	CSS 11506
Slots	3	6
Redundancy	Software (session/VIP redundancy) Redundant switch control (standby)	Software (session/VIP redundancy) Redundant switch module, Redundant power
POWER		
AC	CSS11503-AC	CSS11506-AC
DC	CSS11503-DC	SS11506-DC

Available Modules

Which module you select depends primarily on how much performance you need, how many ports are required, what type of ports are specified, whether redundant switch control is warranted, and whether you will deploy session redundancy.

The Cisco CSS 11506 requires at least one switch control module and can be configured with a second switch control module in standby mode. With the required switch control module in one slot, the Cisco CSS 11506 has five additional slots supporting any combination of I/O, SSL, or session accelerator modules. The Cisco CSS 11503 requires one switch control module and accommodates any two of the other optional modules.

All modules participate in flow setup, but they differ primarily in control functions, performance, SSL capabilities, and I/O.

Switch Control Module for the Cisco CSS 11500 Content Services Switch

Cisco CSS 11500 switch control modules not only govern the whole system, but also contribute to I/O density and flow performance. The switch control module comes standard with two Gigabit Ethernet ports—supporting small-form factor, pluggable gigabit interface converters (GBICs)—and has a console port and Ethernet port for management. The switch control module also features two PCMCIA slots that hold up to two 256-MB Flash memory disks, up to two 512-MB hard disks, or one of each.

SSL Module for the Cisco CSS 11500 Content Services Switch

The Cisco CSS 11500 SSL module is the ideal solution for handling the high volumes of SSL transactions that occupy today's e-business data centers. The module integrates state-of-the-art SSL processors into the leading content-switching technology of Cisco WebNS software. In addition to superior price performance, the SSL module simplifies the management of digital certificates and offers new possibilities in optimizing the switch-to-server architecture for security and performance.

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I/O Module for the Cisco CSS 11500 Content Services Switch

The Cisco CSS 11500 I/O module delivers port density and flow performance. The product line supports three types of I/O modules:

- Two-port Gigabit Ethernet
- Sixteen-port Fast Ethernet
- Eight-port Fast Ethernet

The Fast Ethernet ports are 10/100BASE-TX with standard RJ-45 connectors, whereas the Gigabit Ethernet ports require small-form factor GBICs (1000BASE-SX or 1000BASE-LX).

Session Accelerator Module for the Cisco CSS 11500 Content Services Switch

The session accelerator module is a cost-effective way to add flow performance when additional connectivity is not required. Using the same flow setup and forwarding processors as the I/O modules, it provides the flexibility to optimize the system for port density and performance.

Bundles and Defaults

The default product bundle CSS11506-2AC comes with the CSS 11506 chassis, one switch control module with one hard disk, two switch modules, two AC power supplies, and a tray with fans.

CSS11506 options include redundant switch control modules, SSL modules, session accelerator modules and all I/O modules.

The default product bundle CSS11503-AC comes with the CSS 11503 chassis, which has an integrated power supply, fan, and switch module, and one switch control module with one hard disk.

CSS11503 options include SSL modules, session accelerator modules, and all I/O modules.

The switch control modules, I/O modules, and session accelerator modules all ship with 144 MB of RAM. The SSL module has no configurable options and comes with a fixed 512 MB of SDRAM.

GBICs are not included with any module and must be ordered separately.

Memory

RDRAM can be upgraded from 144 MB to 288 MB on switch control modules, I/O modules, and session accelerator modules.

The amount of memory in the system determines the maximum number of simultaneous flows the system can store. Each module supports either 144 MB of RDRAM (128 MB usable) or 288 MB of RDRAM (256 MB usable).

Because any flow coming in to any port of the system can be stored on any module in the system, all modules in the system should have the same amount of memory. Either all should have 144 MB or all should have 288 MB of RDRAM.

Standby switch control modules should have the same amount of memory as active switch control modules, but the memory on the standby module does not add to the system's capacity to store flows.

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Recommended Memory Configurations	Simultaneous Flows Per System
1 SCM with 144 MB	25000
1 SCM with 144 MB 1 IOM or SAM with 144 MB	125000
1 SCM with 144 MB 2 IOM or SAM with 144 MB	225000
1 SCM with 144 MB 3 IOM or SAM with 144 MB	325000
1 SCM with 144 MB 4 IOM or SAM with 144 MB	425000
1 SCM with 144 MB 5 IOM or SAM with 144 MB	525000
1 SCM with 288 MB	125000
1 SCM with 288 MB 1 IOM or SAM with 288 MB	325000
1 SCM with 288 MB 2 IOM or SAM with 288 MB	525000
1 SCM with 288 MB 3 IOM or SAM with 288 MB	725000
1 SCM with 288 MB 4 IOM or SAM with 288 MB	925000
1 SCM with 288 MB 5 IOM or SAM with 288 MB	1125000

SSL Module

The SSL module will first be supported in the upcoming Cisco WebNS Software Version 5.20.

Up to two SSL modules are supported per CSS 11503 and up to five are supported per CSS 11506.

The SSL module increases SSL performance, but does not contribute to non-SSL system performance. In other words, the MIPS processor and network processor on the SSL module are dedicated to SSL functions and do not add to the overall Layer 5/Layer 4 flow setup and forwarding performance of the system. As a result, a system will need enough SSL modules to handle the SSL load and enough switch control modules and I/O modules to handle Layer 5/Layer 4 loads.

Disk Selection

The switch control module has two PCMCIA slots that hold up to two 256-MB Flash disks, up to two 512-MB hard disks, or one of each. The switch control module ships with one hard disk by default, but may be upgraded to two disks. Any combination of hard disks and Flash disks is supported.

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If logging requires frequent writing to the disk—more than several hundred bytes of log messaging per day—the most reliable configuration is to log to a hard disk and store all other system files on a flash disk. Although Flash disks generally provide the most reliable way to store information over time, hard disks endure frequent writes to disk better than today's Flash disks.

Power Supply Selection

The CSS 11503 ships with one integrated power supply (either AC or DC). The CSS 11506 ships with two load-sharing power supplies (either AC or DC). A third power supply is optional.

GBICs and Cabling

Small Form Factor Pluggable Transceivers (SFP) GBICs should be ordered for each Gigabit Ethernet port used by the customer. GBICs for short-haul (1000BASE-SX) and long-haul (1000BASE-LX) are available.

The GBICs require LC connectors, not SC connectors. To convert from LC to SC, customers can purchase CSS5-CABSX-LCSC, a 10-meter fiber cable with LC connectors on one end and SC connectors on the other. These types of cables are also available from other vendors.

Adaptive Session Redundancy (Layer 5/Layer 4 Stateful Failover)

If a customer plans to deploy Adaptive Session Redundancy (ASR), ports must be dedicated to transfer state, and processing and memory resources need to be scaled. The following is an example of an entry ASR configuration where two links are used for redundant interswitch communication, two are used for redundant ingress, and two are used for redundant egress:

CSS11503-2AC with SCM-2GE (upgraded with 288 MB)
CSS5-IOM-2GE (upgraded with 288 MB)
CSS5-IOM-2GE (upgraded with 288 MB)

This configuration should have sufficient processing and memory resources for a typical ASR scenario.

Feature Sets, Global-Server Load Balancing, and Proximity

The Cisco CSS 11500 Series supports both the standard and enhanced feature sets of Cisco WebNS software. The proximity database feature set for global-server load balancing will not be available in this release, but the Cisco CSS 11500 does support PDNS and may therefore point to a proximity database and participate in a proximity solution. Cisco plans, in future product releases, to continue to maintain and develop solutions for global-server load balancing.

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Distribution

For the basic Cisco CSS 11500 models, distributors should order the following part numbers, which each include one switch control module (CSS5-SCM-2GE with hard disk).

CSS11506-2AC
CSS11506-2DC
CSS11503-AC
CSS11503-DC

Note that none of the part numbers above is a “spare” or “FRU” (no equal sign at the end of the product number).

For redundant or spare switch control modules, distributors should order CSS5-SCM-2GE=, which comes with 144 MB of RDRAM. Hard disk is NOT included with this part number, and disks should be ordered separately (CSS5-HD= or CSS5-FD=).

For additional modules, distributors should stock the following part numbers:

CSS5-IOM-8FE=
CSS5-IOM-16FE=
CSS5-IOM-2GE=
CSS5-SAM=
CSS5-SSL=

Each of these modules comes with 144 MB of RDRAM.

The following options should also be stocked:

CSS5-HD=
CSS5-FD=
CSS5-MEM-288=
CSS506-PWR-AC=
CSS506-PWR-DC=
CSS5-GBIC-SX=
CSS5-GBIC-LX=

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Product Numbers and Descriptions

Systems	
Part Number	Description
CSS11506-2AC	Cisco 11506 Content Services Switch, including a switch control module with two Gigabit Ethernet ports, hard disk, two switch modules, two AC power supplies, and a fan (requires SFP GBICs)
CSS11506-2DC	Cisco 11506 Content Services Switch, including a switch control module with two Gigabit Ethernet ports, hard disk, two switch modules, two DC power supplies, and a fan (requires SFP GBICs)
CSS11503-AC	Cisco 11503 Content Services Switch, including a switch control module with two Gigabit Ethernet ports, hard disk, integrated AC power supply, integrated fan, and integrated switch module (requires SFP GBICs)
CSS11503-DC	Cisco 11503 Content Services Switch, including a switch control module with two Gigabit Ethernet ports, hard disk, integrated DC power supply, integrated fan, and integrated switch module (requires SFP GBICs)
SOFTWARE OPTIONS	
S11K-503ST-5.1	WebNS V5.1X Standard Feature Set for CSS 11503
S11K-503EN-5.1	WebNS V5.1X Enhanced Feature Set for CSS 11503
S11K-506ST-5.1	WebNS V5.1X Standard Feature Set for CSS 11506
S11K-506EN-5.1	WebNS V5.1X Enhanced Feature Set for CSS 11506
S11K-SSH-K9-5.1	WebNS V5.1X SSH Software License for CSS 11000
MODULE OPTIONS	
CSS5-SCM-2GE	Cisco CSS 11500 System Control Module with two Gigabit Ethernet ports and hard disk (requires SFP GBICs)
CSS5-IOM-8FE	Cisco CSS 11500 Fast Ethernet I/O Module: 8-port TX
CSS5-IOM-16FE	Cisco CSS 11500 Fast Ethernet I/O Module: 16-port TX
CSS5-IOM-2GE	Cisco CSS 11500 Gigabit Ethernet I/O Module: 2-port (requires SFP GBICs)
CSS5-SAM	Cisco CSS 11500 Session Accelerator Module
CSS5-SSL	Cisco CSS 11500 SSL Module
CSS506-SM=	CSS11506 Only Switch Module
DISK OPTIONS	
CSS5-HD	CSS11500 PCMCIA Hard Disk
CSS5-HDUHD2	CSS11500 Upgrade: 1 Hard Disk to 2 Hard Disks
CSS5-HDUFD	CSS11500 Upgrade: 1 Hard Disk to 1 Flash Disk
CSS5-HDUFD2	CSS11500 Upgrade: 1 Hard Disk to 2 Flash Disks
CSS5-HDUHDFD	CSS11500 Upgrade: 1 Hard Disk to 1 Hard Disk and 1 Flash Disk
CSS5-HD=	CSS11500 PCMCIA Hard Disk
CSS5-FD=	CSS11500 PCMCIA Flash Disk

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Systems (Continued)	
Part Number	Description
GBIC OPTIONS	
CSS5-GBIC-SX	1000Base-SX Small-Form-Factor Gigabit Interface Converter
CSS5-GBIC-LX	1000Base-LX Small-Form-Factor Gigabit Interface Converter
CSS5-CABSX-LCSC	CSS11500 10-Meter Fiber Cable LC-to-SC Connectors
MEMORY OPTIONS	
CSS5-MEM-144	CSS11500 Memory: 144 MB RDRAM
CSS5-MEM-144U288	CSS11500 Upgrade: 144 MB to 288 MB RDRAM
CSS5-MEM-144=	CSS11500 Memory: 144 MB RDRAM
CSS5-MEM-288=	CSS11500 Memory: 288 MB RDRAM
POWER OPTIONS	
CSS506-PWR-2ACU3AC	CSS11506 Only Upgrade: 2 AC to 3 AC
CSS506-PWR-2DCU3DC	CSS11506 Only Upgrade: 2 DC to 3 DC
CSS506-PWR-AC=	CSS11506 Only AC Power Supply
CSS506-PWR-DC=	CSS11506 Only DC Power Supply
MISCELLANEOUS OPTIONS	
CSS506-FAN	CSS11506 Only Fan Tray
CSS5-CON	CSS11500 Console Cable
CSS506-RACK	CSS11506 Rack Ears
CSS503-RACK	CSS11503 Rack Ears
CSS5-SLOTCVR	CSS11500 Module Slot Cover
CSS5-POWERCVR	CSS11500 Power Supply Slot Cover
POWER CORDS	
CAB-AC	AC Power Cord, US
CAB-ACE	AC Power Cord, Europe
CAB-ACI	AC Power Cord, Italy
CAB-ACU	AC Power Cord, UK
CAB-ACA	AC Power Cord, Australia
CAB-ACS	AC Power Cord, Switzerland
CAB-ACR	AC Power Cord, Argentina
CAB-ACISR	AC Power Cord, Israel

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Platform Support

Cisco CSS 11500 is supported only on Cisco WebNS Software Version 5.10. Cisco CSS 11800, 11150, and 11050 are currently supported in Cisco WebNS Software Version 5.00.

New Software Features

Cisco WebNS Software Version 5.10 introduces ASR for the Cisco CSS 11500. ASR is the industry's first stateful Layer 5 session redundancy feature that enables failover of important flows while maximizing performance.

Some flows—such as a long-lived File Transfer Protocol (FTP) or a database session—may be mission critical, but many are not. Most solutions on the market today require all traffic to be backed up from one box to another. If the majority of flows are not critical, then most of the system performance is wasted on unnecessary backups. With ASR, the Cisco CSS 11500 may be configured so that critical flows are marked as "replication worthy." ASR focuses traffic management resources precisely where needed.

Ordering Information

The following table includes all the software product numbers for Cisco WebNS Software Version 5.10.

Product Number	Description
S11K-503ST-5.1	WebNS V5.1X Standard Feature Set for CSS 11503
S11K-503EN-5.1	WebNS V5.1X Enhanced Feature Set for CSS 11503
S11K-506ST-5.1	WebNS V5.1X Standard Feature Set for CSS 11506
S11K-506EN-5.1	WebNS V5.1X Enhanced Feature Set for CSS 11506
S11K-SSH-K9-5.1	WebNS V5.1X SSH Software License for CSS 11000

Additional Information

For product literature, refer to:

http://www.cisco.com/go/contentswitch

For technical documentation, please visit:

http://www.cisco.com/univercd/cc/td/doc/product/webscale/css/css_510/

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